Fig.1

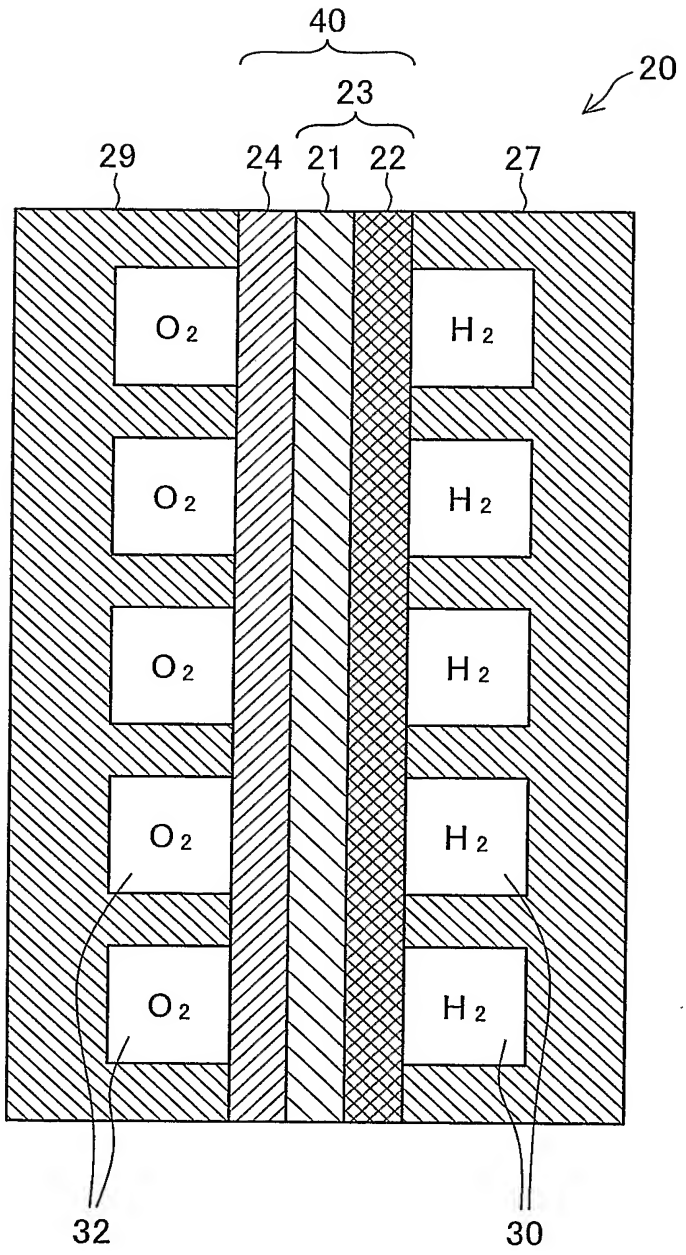


Fig.2

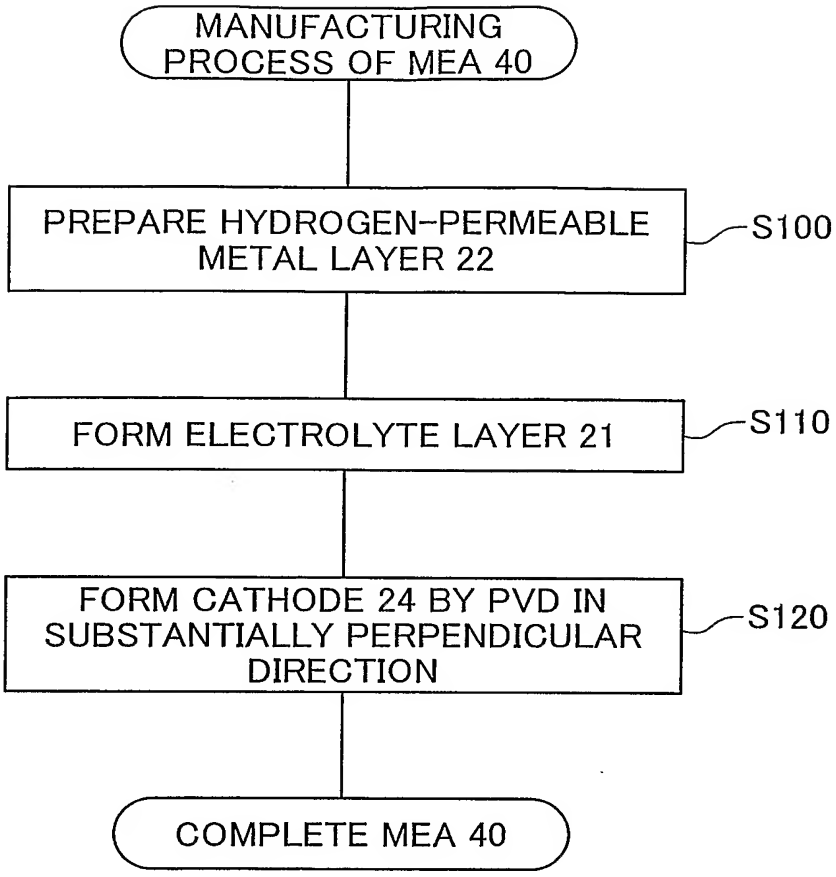

MANUFACTURING PROCESS OF MEA 40
PREPARE HYDROGEN-PERMEABLE METAL LAYER 22
S100
FORM ELECTROLYTE LAYER 21
S110
FORM CATHODE 24 BY PVD IN SUBSTANTIALLY PERPENDICULAR DIRECTION
S120
COMPLETE MEA 40

Fig.3

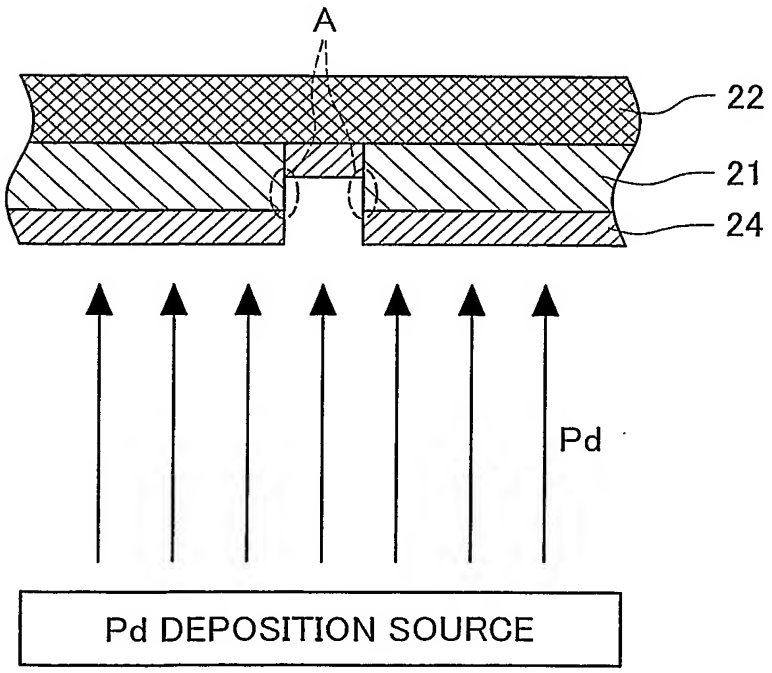

A
22
21
24
Pd
Pd DEPOSITION SOURCE

Fig.4

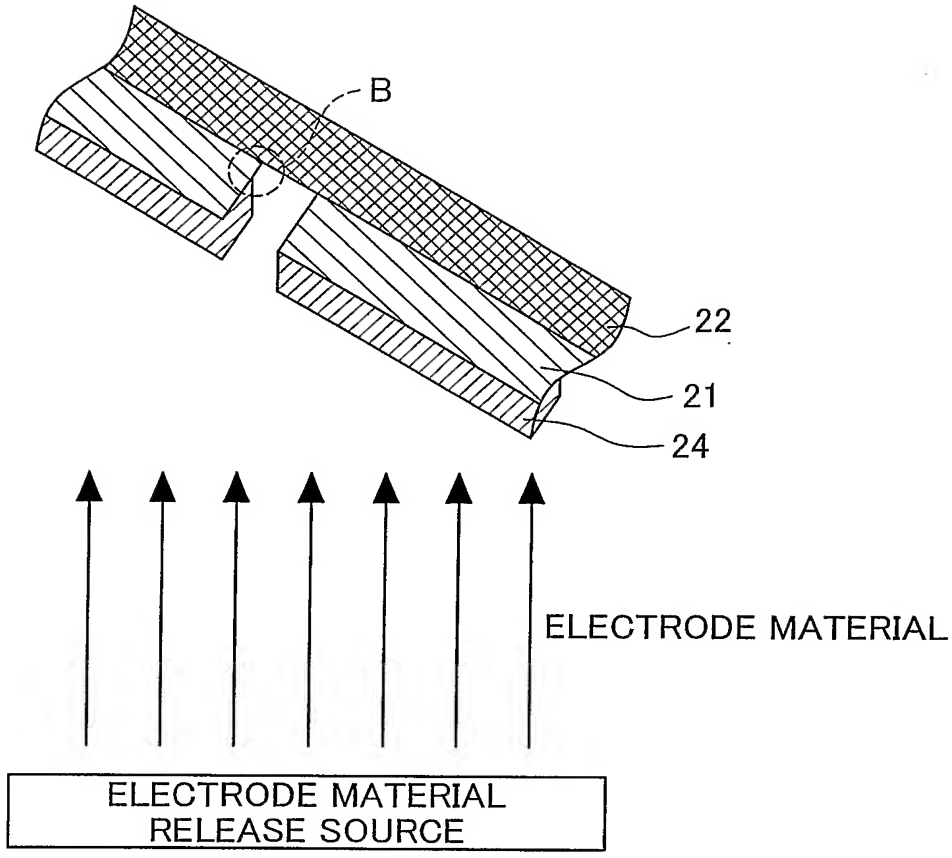

B
22
21
24
ELECTRODE MATERIAL
ELECTRODE MATERIAL
RELEASE SOURCE

Fig.5

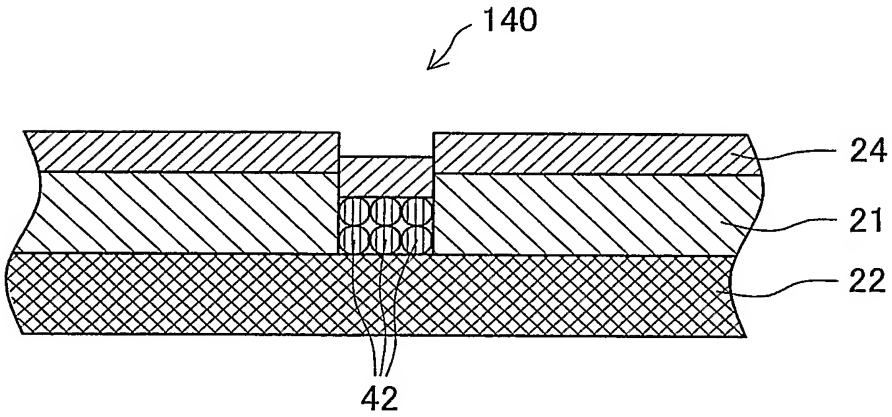

140
24
21
22
42

Fig.6

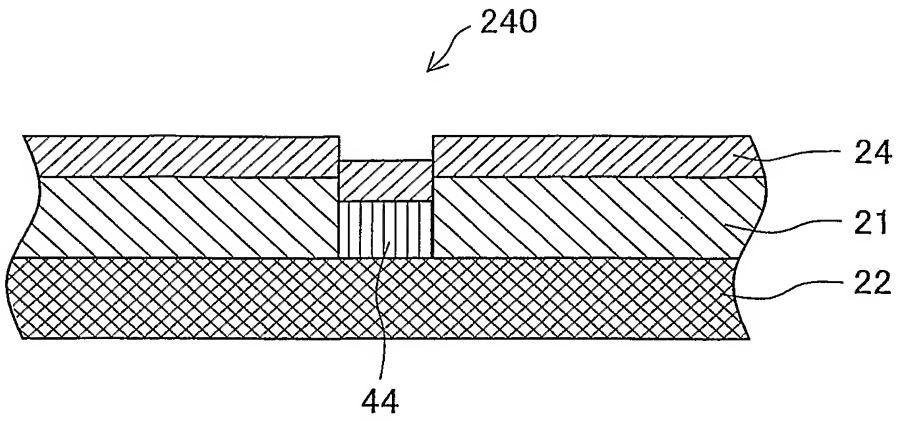
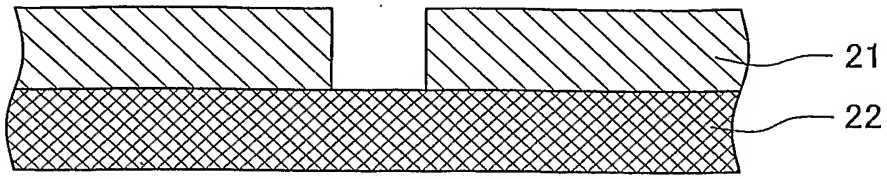
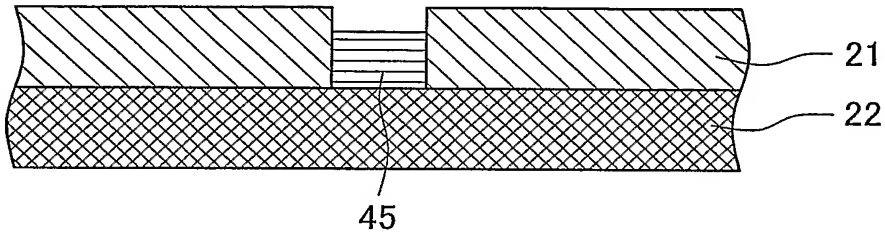


Fig.7

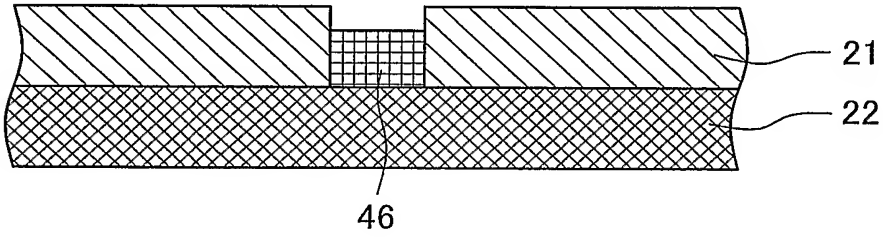
(A) FORM ELECTROLYTE MODULE 23



(B) FORM METAL LAYER 45



(C) OXIDIZE METAL LAYER 45



(D) FORM CATHODE 24

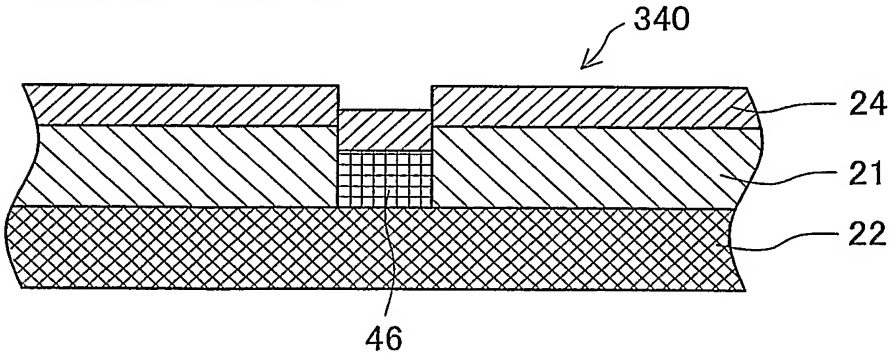
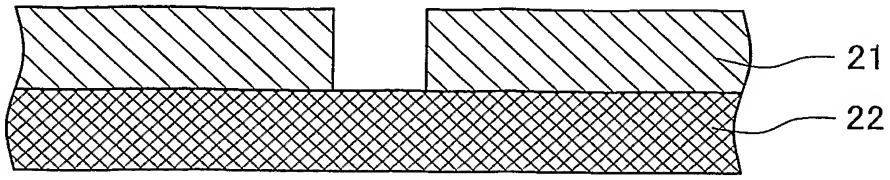
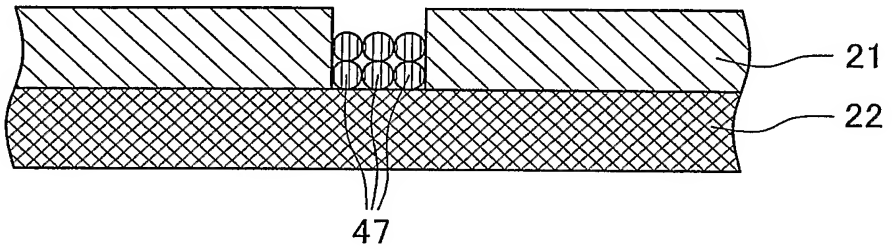


Fig.8

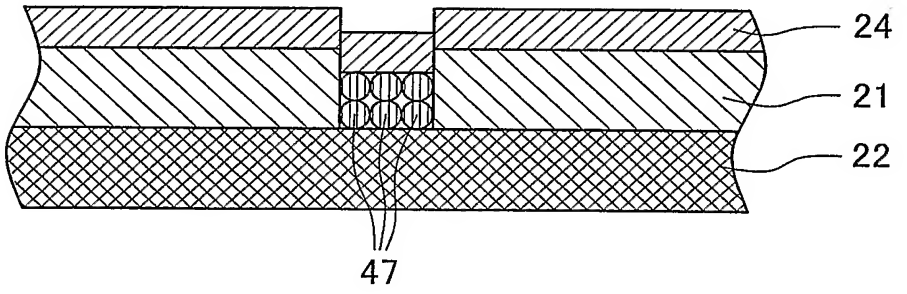
(A) FORM ELECTROLYTE MODULE 23



(B) PACK FINE PARTICLES 47



(C) FORM CATHODE 24



(D) REMOVE FINE PARTICLES 47

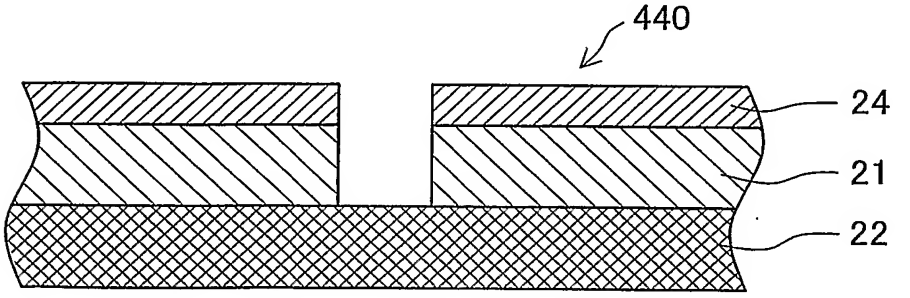
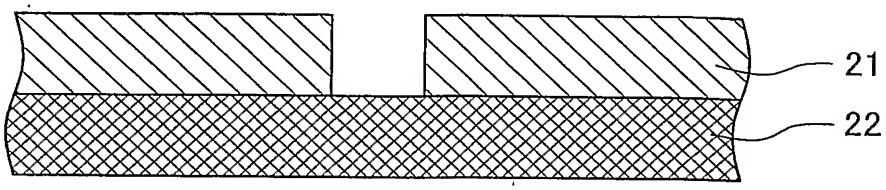
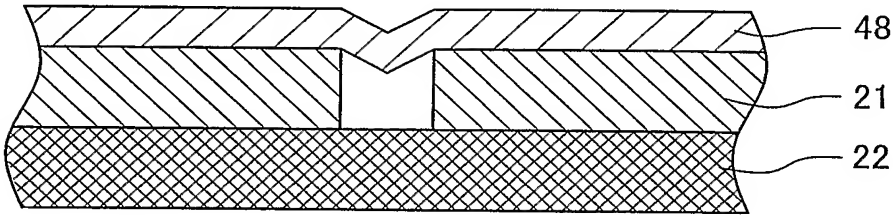


Fig.9

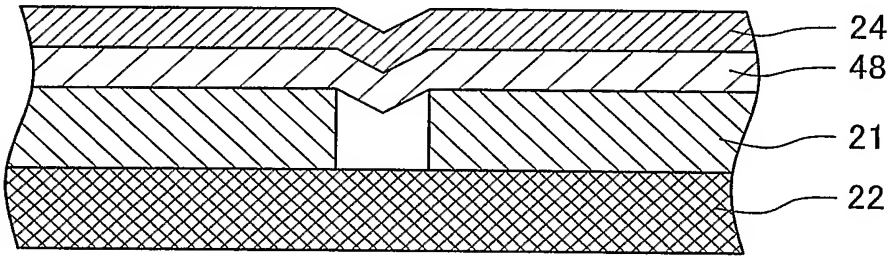
(A) FORM ELECTROLYTE MODULE 23



(B) FORM PROTECTIVE LAYER 48



(C) FORM CATHODE 24



(D) REMOVE PROTECTIVE LAYER 48 AND SINTER CATHODE 24

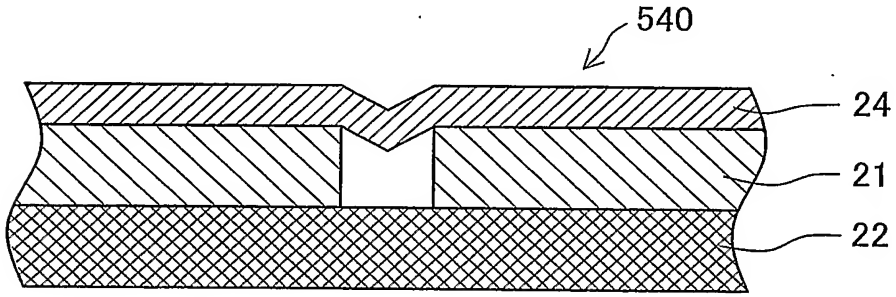


Fig.10

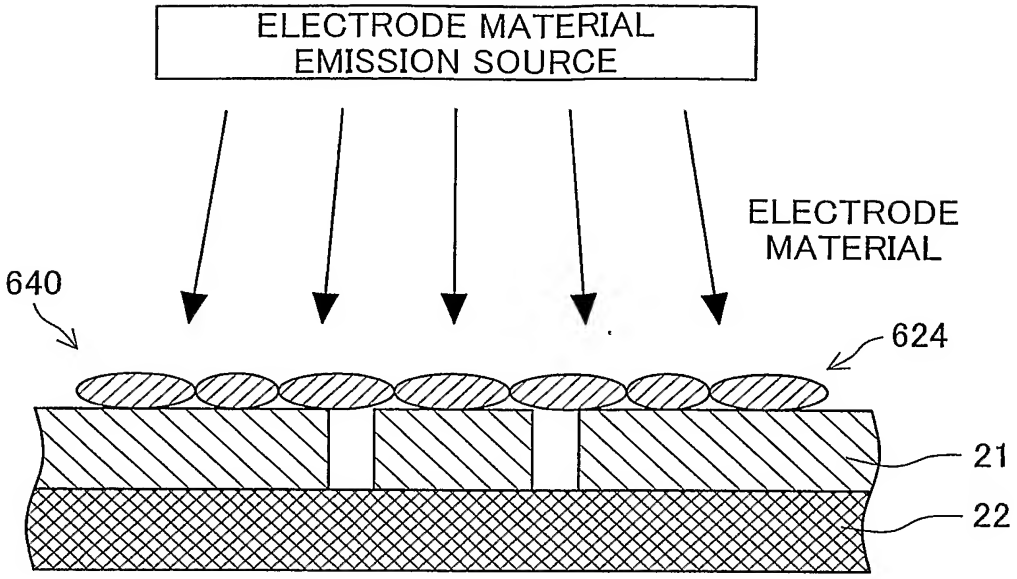
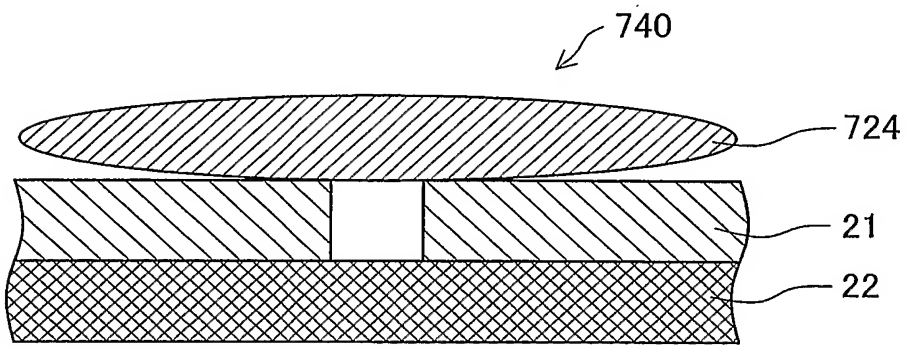


Fig.11

(A)



(B)

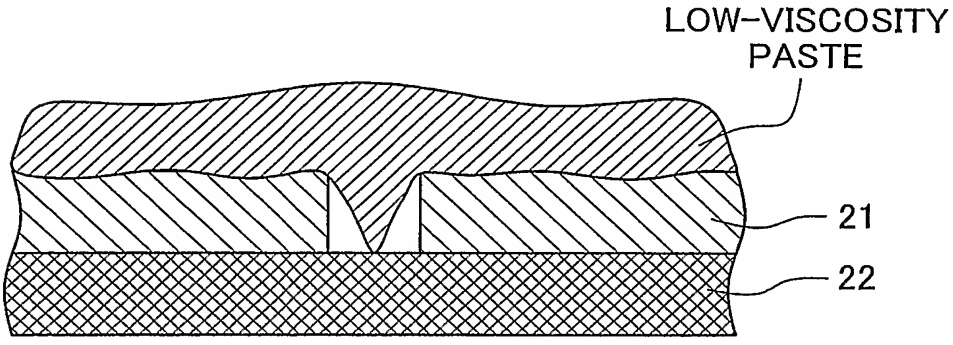
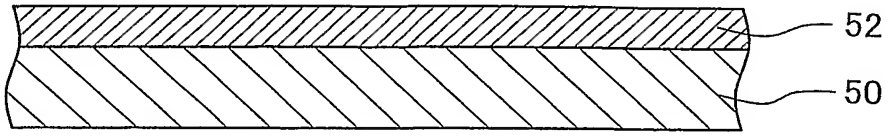
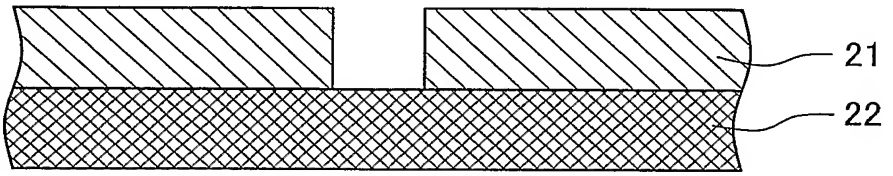


Fig.12

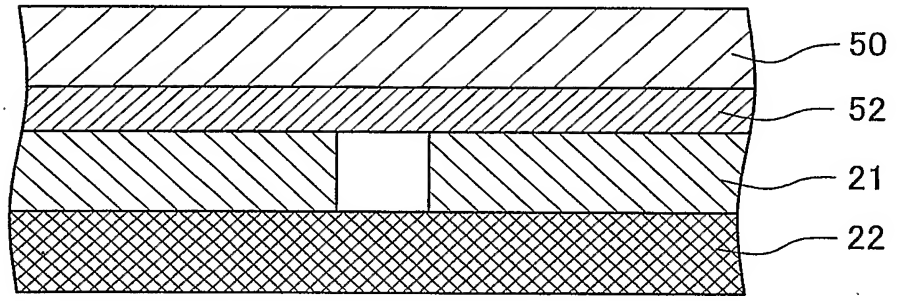
(A) COAT WITH ELECTRODE MATERIAL LAYER 52



(B) FORM ELECTROLYTE MODULE 23



(C) TRANSFER ELECTRODE MATERIAL LAYER 52



(D) FORM CATHODE 824

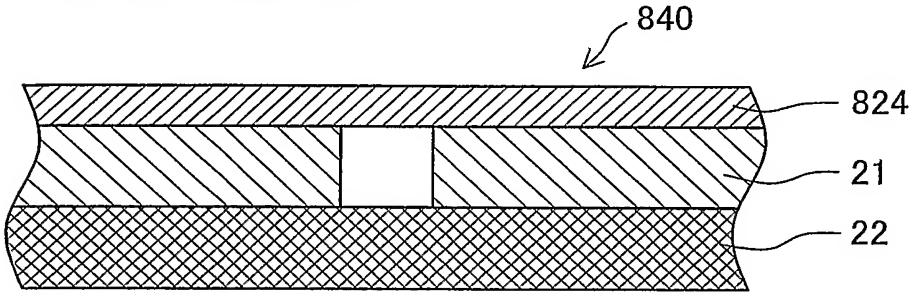


Fig.13